DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement, filed on 01/27/2011, has been considered and placed in the file records.

Response to Arguments

2. Applicant's arguments filed 05/03/2011have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071,5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.1992). In this case, the Examiner very kindly directs the Applicant to Park, e.g., Col. 3:33-44, Col. 4:28-42, Col. 5:7-11, Col. 5:24-37, Col. 5:33-37, Col. 5:57-67, and Fig. 3 step 302, that the object of Park is to facilitate a hard **handoff method between asynchronous CDMA system and synchronous CDMA system** is provided. Park's hard handoff method between asynchronous CDMA system and synchronous CDMA system includes following steps. First step is to transmit asynchronous CDMA channels from synchronous CDMA base stations with a purpose of synchronizing handoff time at synchronous CDMA base station and code used at synchronous CDMA base station. The transmission is done by a mobile

terminal that is in communication with an asynchronous CDMA base station. The transmission is a part of handoff process and the mobile terminal performs hard handoff to synchronous CDMA base station. Second step is to report measured result to the asynchronous CDMA base station on the basis of intensity of asynchronous CDMA pilot channel received from an adjacent synchronous CDMA base station. The reporting is done by the mobile terminal. Third step is to transmit handoff request message to the synchronous CDMA base station on the basis of the measured result. The transmission is done by the asynchronous CDMA base station. Fourth step is to transmit information necessary for handoff to the asynchronous CDMA base station. The transmission is done by the synchronous CDMA base station that receives the handoff request message. Fifth step is to perform hard handoff to the synchronous CDMA base station. The hard handoff is performed by the mobile terminal that receives the information through a traffic channel from the asynchronous CDMA base station. Further, Park teaches that the mobile terminal measures intensity of asynchronous cells and synchronous cells. When a condition is satisfied for a report, for example, **if the intensity of asynchronous cells and synchronous cells is bigger than signal intensity of currently communicating base station by a certain value, the mobile terminal reports the intensity of synchronous cells and synchronous cells and information regarding which base stations are related with the intensity to the network**. On the other hand, in an analogous field of endeavor, Luz teaches (5) determining if a traffic state of an asynchronous mode call has ended or not (See Luz e.g., the BS controller detecting if MS is not operable in accordance with the EV/DV

protocol, upon which the MS and BS continue to operate in accordance with 1X protocol of ¶ [0021], Fig. 4); (6) determining if a radio link with the asynchronous mobile communication network has been released or not (See Luz e.g., determining if increase in communication resources is possible, based on the determination, switching to an appropriate protocol i.e., EV/DV protocol, 1X protocol, or remain using the current protocol of ¶ [0021], Fig. 4) when it is determined that the traffic state of the asynchronous mode call has not ended yet (See Luz e.g., the MS and BS remain using the current protocol of ¶ [0021], Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of Luz to Park for the purpose of optimizing communication resources by operating in accordance with CDMA 1X-EV/DV standard as suggested (See Luz e.g., ¶ [0007]).

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).Therefore, the previous rejection is maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-10, 12-13, 15, 17, 19-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Pat. No.: 7,151,756 B1) in view of Luz (US Pub. No.: 2004/0022265 A1).

Regarding claims 1, 4, 12, and 15, Park teaches a method for mode switching of a multi-mode multi-band mobile communication terminal between an asynchronous mode and a synchronous mode in a traffic state (See Park e.g., a handoff method between BSs' of an asynchronous CDMA and synchronous CDMA of Col. 3:33-44, Fig. 3), the multi-mode multi-band mobile communication terminal including an asynchronous modem for communication with an asynchronous mobile communication network (See Park e.g., the mobile station measuring intensity of asynchronous cells of Col. 4:28-42, Fig. 3) and a synchronous modem for communication with a synchronous mobile communication network (See Park e.g., the mobile station measuring intensity of synchronous cells of Col. 4:28-42, Fig. 3), the method comprising the steps of: (1) measuring a power of a received signal from the asynchronous mobile communication network (See Park e.g., measuring intensity of asynchronous cells i.e., a power of a received signal, of Col. 4:32-33, Fig. 3 step 302); (2) determining if the measured power of the received signal has a value lower than a preset threshold value (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value of Col. 4:35-42, Fig. 3 step 303); (3) determining if a state in which the measured power of the received signal has a value lower than a preset threshold value is maintained during a predetermined time interval (See Park e.g., the handoff message and the starting point for the handoff after 10 ms unit after the message of

Col. 5:7-11, Fig. 3 steps 311-313); (4) operating the synchronous modem when the state has been maintained during a predetermined time interval (See Park e.g., the synchronous base station selecting the closest 80 ms starting point of Col. 5:57-67, Fig. 4).

Park further teaches (7) converting a current communication mode into a synchronous mode (See Park e.g., handover complete report, IS95 BS notifying that it has received handover completion message successfully to the MS of Col. 5:24-37, Fig. 3 steps 314-317) and processing a synchronous mode call with the synchronous mobile communication network through the synchronous modem (See Park e.g., releasing the resources held by 3GPP DS BS of Col. 5:33-37, Fig. 3 steps 316-317) when it is determined that the radio link with the asynchronous mobile communication network has been released (See Park e.g., 3GPP DS BS releasing the resources, and notifying the release to the mobile switch of Col. 5:33-37, Fig. 3 steps 316-317). However, Park does not explicitly teach (5) determining if a traffic state of an asynchronous mode call has ended or not; (6) determining if a radio link with the asynchronous mobile communication network has been released or not when it is determined that the traffic state of the asynchronous mode call has not ended yet.

In an analogous field of endeavor, Luz teaches (5) determining if a traffic state of an asynchronous mode call has ended or not (See Luz e.g., the BS controller detecting if MS is not operable in accordance with the EV/DV protocol, upon which the MS and BS continue to operate in accordance with 1X protocol of ¶ [0021], Fig. 4); (6) determining if a radio link with the asynchronous mobile communication network has

been released or not (See Luz e.g., determining if increase in communication resources is possible, based on the determination, switching to an appropriate protocol i.e., EV/DV protocol, 1X protocol, or remain using the current protocol of ¶ [0021], Fig. 4) when it is determined that the traffic state of the asynchronous mode call has not ended yet (See Luz e.g., the MS and BS remain using the current protocol of ¶ [0021], Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of Luz to Park for the purpose of optimizing communication resources by operating in accordance with CDMA 1X-EV/DV standard as suggested (See Luz e.g., ¶ [0007]).

Regarding claims 2, 5, the combination teaches everything claimed as discussed above in the rejected claims 1, 4. In addition, Park teaches wherein the power measured in step (1) is a Received Signal Code Power (RSCP) (See Park e.g., the mobile station measuring the intensity of adjacent cells, i.e., measuring the power of Col. 4:28-42, Fig. 3) which is a power of a decoded signal obtained through decoding of the received signal from the asynchronous mobile communication network by the mobile communication terminal (See Park e.g., the mobile station measuring the intensity of synchronous cells, and asynchronous cells of Col. 4:28-42, Fig. 3).

Regarding claims 3, 6, the combination teaches everything claimed as discussed above in the rejected claims 1, 4. In addition, Park teaches, wherein the power measured in step (1) includes a power of the received signal itself from the asynchronous mobile communication network (See Park e.g., the mobile station measuring the intensity of asynchronous cells of Col. 4:28-42, Fig. 3) and an RSCP

which is a power of a decoded signal obtained through decoding of the received signal by the mobile communication terminal (See Park e.g., the mobile station measuring the intensity of synchronous cells, and asynchronous cells of Col. 4:28-42, Fig. 3), and each of the power of the received signal itself and the RSCP is compared with the preset threshold value in step (2) (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value of Col. 4:35-42, Fig. 3 step 303).

Regarding claims 7, 10, the combination teaches everything claimed as discussed above in the rejected claims 1, 4. In addition, Luz teaches when it is determined in step (5) that the traffic state of the asynchronous mode call has ended (See Luz e.g., determining if increase in communication resources is possible, based on the determination, switching to an appropriate protocol i.e., EV/DV protocol, 1X protocol, or remain using the current protocol of ¶ [0021], Fig. 4), the method further comprises the steps of: determining if the mobile communication terminal is currently located within an area of the asynchronous mobile communication network (See Luz e.g., the MS moving into a second cell serviced a second BS from a cell serviced by a first BS of ¶ [0015], Fig. 4); and deactivating the synchronous modem when the mobile communication terminal is located within the area of the asynchronous mobile Communication network (See Park e.g., handover complete report, BSs' notifying that it has received handover completion message successfully to the MS of Col. 5:24-37, Fig. 3 steps 314-317) and entering into an asynchronous mode idle state (See Luz e.g., remain using the current protocol, i.e., EV/DV protocol, 1X protocol of ¶ [0021], Fig. 4),

and deactivating the asynchronous modem when the mobile communication terminal is not located within the area of the synchronous mobile communication network and entering into a synchronous mode idle state (See Luz e.g., determining if increase in communication resources is possible, based on the determination, switching to an appropriate protocol i.e., EV/DV protocol, 1X protocol of ¶ [0021], Fig. 4).

Regarding claim 8, the combination teaches everything claimed as discussed above in the rejected claim 1. In addition, Park teaches the method further comprises the steps of: measuring the power of the received signal from the asynchronous mobile communication network (See Park e.g., measuring intensity of asynchronous cells i.e., a power of a received signal, of Col. 4:32-33, Fig. 3 step 302);; determining if the power of the received signal has a value exceeding a preset threshold value (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value of Col. 4:35-42, Fig. 3 step 303); and deactivating the synchronous modem and returning to step (5) when it is determined that the power of the received signal has a value exceeding the preset threshold value (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value of Col. 4:35-42, Fig. 3 step 303). Luz teaches when it is determined in step (6) that the radio link with the asynchronous mobile communication network has not been released yet (See Luz e.g., remain using the current protocol, i.e., EV/DV protocol, 1X protocol of ¶ [0021], Fig. 4).

Regarding claim 9, the combination teaches everything claimed as discussed above in the rejected claim 8. In addition, Luz teaches when it is determined that the

power of the received signal has a value exceeding the preset threshold value, step (5) is re-executed in a state where the synchronous modem is operated (See Luz e.g., the BS controller detecting if MS is not operable in accordance with the EV/DV protocol, upon which the MS and BS continue to operate in accordance with 1X protocol of ¶ [0021], Fig. 4).

Regarding claims 13, 17, the combination teaches everything claimed as discussed above in the rejected claims 12, 15. In addition, Luz teaches wherein step (3) comprises the steps of: checking a current communication mode of the mobile communication terminal (See Luz e.g., remain using the current protocol, i.e., EV/DV protocol, 1X protocol of ¶ [0021], Fig. 4); and operating the synchronous modem when the current communication mode of the mobile communication terminal is a preferred asynchronous mode (See Luz e.g., the BS controller detecting if MS is not operable in accordance with the EV/DV protocol, upon which the MS and BS continue to operate in accordance with 1X protocol of ¶ [0021], Fig. 4).

Regarding claims 19, Park teaches a method for mode switching of a multi-mode multi-band mobile communication terminal between an asynchronous mode and a synchronous mode (See Park e.g., a handoff method between BSs' of an asynchronous CDMA and synchronous CDMA of Col. 3:33-44, Fig. 3), the mobile communication terminal including modems for communication with an asynchronous mobile communication network and a synchronous mobile communication network (See Park e.g., the mobile station measuring intensity of asynchronous cells, and synchronous cells of Col. 4:28-42, Fig. 3), the method comprising the steps of: determining whether

to perform mode switching based on a result of comparison between a signal intensity of the asynchronous mobile communication network and a preset signal intensity (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value for handoff of Col. 4:35-42, Fig. 3 step 303); operating a corresponding modem for connection with a target mobile communication network which is a target of mode switching (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value for handoff of Col. 4:35-42, Fig. 3 step 303), when it is determined to perform the mode switching (See Park e.g., releasing the resources held by BSs' of Col. 5:33-37, Fig. 3 steps 316-317); acquiring a network sync with the target mobile communication network by the corresponding modem (See Park e.g., handover commence, handoff confirm, and clear handoff messages of Col. 5:1-23, Fig. 3 steps 311-313); and performing communication with the target mobile communication network through the corresponding modem and deactivating another modem having been communicating with another mobile communication network (See Park e.g., handover complete report, BSs' notifying that it has received handover completion message successfully to the MS of Col. 5:24-37, Fig. 3 steps 314-317). However, Park does not explicitly teach performing registration of location to the target mobile communication network.

In an analogous field of endeavor, Luz teaches performing registration of location to the target mobile communication network (See Luz e.g., the Home Location Register (HLR) of ¶ [0015]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of Luz to Park for the purpose of optimizing communication resources by operating in accordance with CDMA 1X-EV/DV standard as suggested (See Luz e.g., ¶ [0007]).

Regarding claim 20, the combination teaches everything claimed as discussed above in the rejected claim 19. In addition, Park teaches wherein, before step (1), it is determined to perform the mode switching when the mobile communication terminal receives a mode switch parameter from a base station of the synchronous mobile communication network (See Park e.g., handover commence, handoff confirm, and clear handoff messages of Col. 5:1-23, Fig. 3 steps 311-313) while moving into an area of the asynchronous mobile communication network from an area of the synchronous mobile communication network (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value for handoff of Col. 4:35-42, Fig. 3 step 303), the base station being located within an overlap area between the asynchronous mobile communication network and the synchronous mobile communication network See Park e.g., the mobile station measuring intensity of asynchronous cells, and synchronous cells, i.e., overlapping areas of Col. 4:28-42, Fig. 3).

Regarding claim 21, the combination teaches everything claimed as discussed above in the rejected claim 19. In addition, Park teaches wherein, before step (1), when the mobile communication terminal moves into the area of the asynchronous mobile communication network from the area of the synchronous mobile communication

network (See Park e.g., the mobile station measuring intensity of asynchronous cells, and synchronous cells to perform handoff for better services of Col. 4:28-42, Fig. 3), the mobile communication terminal monitors system information from the asynchronous mobile communication network (See Park e.g., comparing the intensity of the cells with the signal intensity of the current base station by a certain value for handoff of Col. 4:35-42, Fig. 3 step 303) and determines to perform the mode switching if a preset parameter value for the mode switching are included in the monitored system information (See Park e.g., handover commence, handoff confirm, and clear handoff messages of Col. 5:1-23, Fig. 3 steps 311-313).

Regarding claim 23, the combination teaches everything claimed as discussed above in the rejected claim 19. In addition, Park teaches wherein it is determined to perform the mode switching when a current communication mode of the mobile communication terminal is a preferred asynchronous mode or preferred synchronous mode (See Park e.g., handover commence, handoff confirm, and clear handoff messages for handoff between asynchronous and synchronous or vice versa of Col. 5:1-23, Fig. 3 steps 311-313).

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Luz , and in further view of Malladi (US Pub. No.: 2004/0203985 A1).

Regarding claim 11, the combination teaches everything claimed as discussed above in the rejected claim 1. However, the combination does not explicitly teach wherein step (4) comprises the steps of: monitoring a BLock Error Rate (BLER) when it is determined in step (3) that the state in which the measured power of the received

signal has a value lower than a preset threshold value is maintained during the predetermined time interval, the BLER indicating a rate of defective blocks per second received at a radio end; comparing the BLER with a preset threshold value; and operating the synchronous modem when it is determined that the BLER exceeds the preset threshold value.

In an analogous field of endeavor, Malladi teaches wherein step (4) comprises the steps of: monitoring a BLock Error Rate (BLER) (See Malladi e.g., determining the BLER of ¶ [0023]) when it is determined in step (3) that the state in which the measured power of the received signal has a value lower than a preset threshold value is maintained during the predetermined time interval (See Malladi e.g., determining if the BLER is greater than the predetermined threshold TH2 of ¶ [0023]), the BLER indicating a rate of defective blocks per second received at a radio end (See Malladi e.g., the BLER, i.e., the Block Error Rate of ¶ [0023]); comparing the BLER with a preset threshold value (See Malladi e.g., determining if the BLER is greater than the predetermined threshold TH2, i.e., comparing of ¶ [0023]); and operating the synchronous modem when it is determined that the BLER exceeds the preset threshold value (See Malladi e.g., the channel condition is satisfactory i.e., RNC requesting to decrease the target pilot signal threshold of node B of ¶ [0023]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of to Malladi to Park, Luz for the purpose of uplink power control during imbalanced links as suggested (See Malladi e.g., ¶ [0006]).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Luz , and in further view of Chaudry (US Pub. No.: 20090098877).

Regarding claim 14, the combination teaches everything claimed as discussed above in the rejected claim 12. In addition, Luz teaches when the current communication mode of the mobile communication terminal is a preferred asynchronous mode (See Luz e.g., the BS controller detecting if MS is not operable in accordance with the EV/DV protocol, upon which the MS and BS continue to operate in accordance with 1X protocol of ¶ [0021], Fig. 4). However, the combination does not explicitly wherein step (3) comprises the steps of: determining if a Mobile Country Code (MCC) and a Mobile Network Code (MNC) contained in the system information correspond to a first parameter indicating a preset country code and a second parameter indicating a preset network code, respectively; and operating the synchronous modem when the MCC and the MNC in the system information correspond to the first parameter and the second parameter, respectively.

In an analogous field of endeavor, Chaudry teaches wherein step (3) comprises the steps of: determining if a Mobile Country Code (MCC) and a Mobile Network Code (MNC) contained in the system information correspond to a first parameter indicating a preset country code and a second parameter indicating a preset network code (See Chaudry e.g., the GSM/GPRS system and MCC, MNC of ¶ [0024]) , respectively; and operating the synchronous modem when the MCC and the MNC in the system information correspond to the first parameter and the second parameter, respectively

(See Chaudry e.g., when the network is operable pursuant to the GSM/GPRS standards, the NPCs are MCC, MNC of ¶ [0037]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of to Chaudry to Park, Luz for the purpose of provide the mobile node with routing information that requires lessened amounts of overhead would therefore permit communication capacity of the communication system to be increased as suggested (See Chaudry e.g., ¶ [0016]).

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Luz , and in further view of Fukui (US Pat. No.: 5,920,563).

Regarding claim 16, the combination teaches everything claimed as discussed above in the rejected claim 15. However, the combination does not explicitly teach wherein the mode switch parameter is set at a bit at a predetermined ordinal position from the Most Significant Bit (MSB) in the overhead message and is a parameter for notifying an overlap area between the asynchronous mobile communication network and the synchronous mobile communication network.

In an analogous field of endeavor, Fukui teaches wherein the mode switch parameter is set at a bit at a predetermined ordinal position from the Most Significant Bit (MSB) in the overhead message (See Fukui e.g., overhead information embedded in the signal of Col. 4:29-41) and is a parameter for notifying an overlap area between the asynchronous mobile communication network and the synchronous mobile communication network (See Fukui e.g.,. overhead information and asynchronous, synchronous transfer modes of Col. 4:29-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the above teachings of Fukui to Park, Luz for the purpose of achieving high function, high performance goals as suggested (See Fukui e.g., Col. 1:19-24).

Allowable Subject Matter

8. Claims 24-25, 29-30 are allowed.

9. The following is an examiner's statement of reasons for allowance: 24-25, 29-30.

With respect to claims 24-25, 29-30, , the prior art of record fails to disclose either singularly or in combination to render obvious that wherein in step (3), the counting interval increases as the number of times for the searching increases, the mobile communication receives a system parameter from the asynchronous mobile communication network for searching the asynchronous signal and the counting interval is determined based on the system parameter, and the system parameter contains information of a unit interval T for searching the asynchronous signal, a modulus A for determining the time interval of asynchronous signal searching, and a maximum threshold Nmax for the number of times for searching the asynchronous signal, and the counting interval is determined by an equation, t=A.sup.n*T, where n denotes a number of times by which the mobile communication terminal has performed searching for the asynchronous signal and n has a value increasing by one each time from 1 to "Nmax".

Any comments considered necessary by applicant must be submitted no later than the pa of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BABAR SARWAR whose telephone number is (571)270-5584. The examiner can normally be reached on MONDAY TO FRIDAY 08:00 AM -04:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NICK CORSARO can be reached on (571)272-7876. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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